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# REPORT

OF THE

BOARD OF MANAGERS

OF THE

**Lehigh Coal and Navigation Company,**

TO

THE STOCKHOLDERS.

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*JANUARY* 13, 1840.

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At an election held on the 13th of January, 1840,  
the following named persons were chosen officers of  
THE LEHIGH COAL AND NAVIGATION COMPANY for  
the ensuing year: viz.

*President.*

Joseph Watson.

*Managers.*

Josiah White,	John M <sup>c</sup> Allister,
Erskine Hazard,	James M <sup>c</sup> Alpin,
Timothy Abbott,	Nathan Trotter,
Thomas Earp,	Joseph R. Jenks,
John Cook,	William H. Hart.

*Treasurer.*

Otis Ammidon.

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EDWIN WALTER,

*Secretary*

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# REPORT

OF THE

BOARD OF MANAGERS

OF THE

LEHIGH COAL AND NAVIGATION COMPANY.

*To the Stockholders of the Lehigh Coal and Navigation Company:*

The Managers submit the following Report of the business of the Company, for the year 1839.

A continuance of commercial difficulties and embarrassments throughout the country, has of course prevented any material increase in the business of the Lehigh Navigation, or the Coal Mines connected with it.

The quantity of Coal which was taken during the year, from the Company's Mines, was 142,507 tons, of which 104,805 tons, came from the Old or Summit mines, and 37,702 tons, from the Room Run mines.

The whole quantity of Coal which was carried on the navigation, to the various markets, was 221,850 tons, which came from the following sources, viz:



	Tons.
From the Lehigh Coal and Navigation Company's Mines, shipped at Mauch Chunk,	140,760
From the Beaver Meadow Rail Road and Coal Co's. Mines, shipped at Parryville,	38,595
From the Hazleton Coal Co's. Mines, shipped at Penn Haven,       -       -       -       -       -	33,826
From the Sugar Loaf Coal Co's. Mines, shipped at Penn Haven,       -       -       -	7,510
Other coal,       -       -       -       -       -       -	1,159
<hr/>	
Total, tons of coal by Lehigh Canal,       -	221,850

Being an excess of 7,639 tons, over the shipments of 1838.

Of the total quantity of coal which was brought down the Lehigh Canal, in 1839, the following passed directly into the Morris Canal, opposite Easton, viz :

From Beaver Meadow,	19,307 tons
Hazleton,	17,774   "
Mauch Chunk,	11,350   "
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	48,431 tons,

and 159,686 tons entered the Delaware division of the Pennsylvania Canal, as reported by the State collector at Easton. Of the coal which reached Bristol by the State Canal above mentioned, about 21,000 tons were sent from that place up the river Delaware, and into the Delaware and Raritan Canal, and about 44,000 tons were shipped from Bristol and its vicinity, in vessels bound coastwise. The remaining quantity, was delivered at Philadelphia, or intermediate places.

At the close of the year 1838, there remained unsold of the Coal owned by this Company, upwards of 50,000 tons, nearly one half of which was stored at Perth Amboy, and Jersey City, and the remainder chiefly at Bristol and Philadelphia. The stock remaining at the end of 1839, is about 60,000 tons, at the various depôts above mentioned, and in about the same proportions.

The tolls for the past year amounted to \$141,300  $\frac{11}{100}$ , and the sales of coal by this Company, reached nearly 130,000 tons. The profits derived from these sources principally, have enabled the Managers to make the usual dividend, while the surplus, in addition to the sum heretofore set apart as the Contingent Fund required by the by-laws, remains about the same as at the close of the preceding year. The report of the Dividend Committee, together with other documents showing the present state of the Company's finances, and of the investments of its capital and loans in the navigation, railroad, and coal business, will be read to the meeting, and will remain open at all times, at the office, for the inspection of the Stockholders, as usual.

During the past year, the Company have continued to make very considerable and productive sales of lots and water privileges, in White Haven, Mauch Chunk, South Easton, and other points on the Canal, and there is every prospect of a continued and active demand for that species of property along the line of improvements.

In the month of August last, the Managers, in the exercise of a prudent foresight, advertised for a Loan to meet the demands of the railroad, and the payment



of the Loan which fell due near the close of the year, and for the first time, offered the privilege of converting it into the stock of the Company, though at a limited price. Such, however, was the depression of all moneyed concerns at that time, that the offers made for the Loan were not satisfactory, and the Board was induced to resort to the offer of the 12,000 shares of additional stock, authorized by act of Assembly, of March 13th, 1837, to be distributed among the old stockholders, pro rata, at par; of which 10,071 shares were subscribed for. Applications were made by many of the stockholders, for a large number beyond the proportion to which they were entitled, which of course could not be granted them. Of the amount received for the new stock, nearly \$300,000 is unexpended, and the greater portion is drawing interest, and payable on demand.

Statements have been furnished to us by various Coal Companies, on the Upper Section of the Lehigh, which will be read in the Appendix to this report. The progress of these Companies, as they are or will be toll-payers to a large amount on our canal, is a matter in which we are much interested. In addition to the Beaver Meadow Company, and the Hazleton Company, which were previously in operation, the preceding list of shipments shows, that within the past year the Sugar Loaf Company commenced business. The Buck Mountain Company will in the present year, 1840, get into operation, and contribute to the trade of the canal. The other companies on the Upper Section, of which information will be found



n the Appendix, are the Stafford Company, the Summit Company, and the Northampton and Luzerne Company. No communications have been received concerning the "*Tamanend Mining Company*," or the Lehigh Branch of the *Little Schuylkill and Susquehanna Railroad*, commonly called the *Catawissa Railroad*.

A statement has been received, and inserted in the Appendix also, from the Wyoming Coal Company, whose improvements connect with the Lehigh and Susquehanna Railroad, near Wilkesbarre.

Although our Company are themselves the owners of extensive and very productive Coal Mines, yet as the Navigation is now their great preponderating interest, it is obviously their policy to promote, by a liberal course, the utmost possible amount of business on the Canal, and on its *feeder*, the Railroad. This being the case, the Managers may say, in accordance with the sentiments of former reports, that there can be no just ground for jealousy on account of our Company being proprietors of both coal mines and canal. Now that the navigation is finished, and the railroad that connects it with the Susquehanna, nearly so, it is the wish of the Managers that the Company shall gradually so change their business, as ultimately to become simply a receiver of tolls and of rents, from its varied and valuable estates, relinquishing to others the coal business, as fast as they shall bring on to the Lehigh, enterprise and capital sufficient to take our place in that department.

The following is a statement of the freight carried upon the Lehigh Navigation, in 1839.

*Freight transported on the Lehigh Navigation, in 1839.*

					ASCENDING.		DESCENDING.		TOTAL.	
					Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.
Coal,	-	-	-	-	824	17	221,025	14	221,850	17
Grain,	-	-	-	-	651	07	1,616	07	2,267	14
Flour,	-	-	-	-	563	06	3,803	11	4,366	17
Salt,	-	-	-	-	547	06	3	09	550	15
Salt Fish, Beef, and Pork,	-	-	-	-	401	14	33	19	435	13
Beer, Porter, Cider,	-	-	-	-		03				03
Other provisions,	-	-	-	-	280	19	10	18	291	17
Whisky,	-	-	-	-	67	14	206	09	274	03
Hay and Straw,	-	-	-	-	243	01	1	10	244	11
Lumber,	-	-	-	-	1,244	00	11,162	18	12,406	18
Cord Wood,	-	-	-	-	103	00	2,545	15	2,648	15
Bricks,	-	-	-	-	1,699	18	281	10	1,981	00
Slate,	-	-	-	-	6	02	89	10	95	12
Lime and Limestone,	-	-	-	-	5,314	09	54	08	5,368	17
Other Stone, Sand and Plaster,	-	-	-	-	1,409	08	87	17	1,497	00
Iron,	-	-	-	-	3,867	07	2,771	06	6,638	13
Iron Ore,	-	-	-	-	6,637	05	2,020	11	8,657	16
Pitch, Tar, and Rosin,	-	-	-	-	17	08	0	18	18	00
Merchandise,	-	-	-	-	2,164	14	1,430	02	3,594	16
Totals,	-	-	-	-	26,043	18	247,146	12	273,190	17

Of the foregoing freight, the following entered the Upper Grand Section:

					ASCENDING.		DESCENDING.		TOTAL.	
					Tons.	Cwt.	Tons.	Cwt.	Tons.	Cwt.
Coal,	-	-	-	-	157	06	41,565	17	41,723	00
Grain,	-	-	-	-	103	05			103	00
Flour,	-	-	-	-	79	07	1	00	80	00
Bricks,	-	-	-	-	109	09	1	00	110	00
Lime and Limestone,	-	-	-	-	90	04	2	00	92	00
Salt,	-	-	-	-	20	11	2	00	22	11
Salt Fish, Beef, and Pork,	-	-	-	-	96	00	11	01	107	00
Other Provisions,	-	-	-	-	68	09			68	00
Hay and Straw,	-	-	-	-	107	17			107	17
Whisky,	-	-	-	-	8	17			8	17
Pitch,	-	-	-	-	1	00			1	00
Iron,	-	-	-	-	2,648	08	1	00	2,649	00
Lumber,	-	-	-	-	250	15	9,191	08	9,442	00
Merchandise,	-	-	-	-	427	05	14	01	441	00
Totals,	-	-	-	-	4,168	13	50,789	07	54,958	00



As the new work of the Upper Section is an object of especial interest, it may be satisfactory to state, that the tolls of that section which in 1838, the year it was first opened, amounted to \$11,968,09, were in the past year \$29,172,50.

The following shows the increase in the important articles of coal and lumber, carried on the Upper section:

	In 1838,	In 1839,
Coal,	16,038 tons,	41,723 tons,
Lumber,	2,389 “	9,442 tons of 1000 ft. b. m.

From the preparations making for the coal, lumber, and other business, by companies and individuals on this section, it is expected that the *rate* of increase of tolls upon it in 1840, will at least equal that of the past year, and probably much exceed it.

The Canal and Slackwater navigation, throughout, has been in good order during the whole of the season; and it is with pleasure we may inform the stockholders that there has been no break in the works of the upper section since its inspection by the commissioners appointed by the governor.

The report of the engineer, which will be found in the Appendix, will show the progress made in the railroad between the head of the slackwater navigation on the Lehigh, and the north branch division of the Pennsylvania Canal, at Wilkesbarre. From this it will appear that we may calculate on having the use of the road in the month of September next. This will form a new era in the history of the company; and it may not be improper to lay before the stock-



holders a view of some of the advantages that may be expected from the completion of this important work.

The whole length of the rail road, between the two points mentioned, is but twenty miles, being but about one-third the length of the shortest of the other rail road communications between the navigable waters of the Susquehanna and Delaware rivers; and, from its grade and construction, it will allow of as cheap transportation upon it, for equal distances, as any other. Provision has been made at both the Lehigh and Susquehanna terminations of the road for the most ample accommodations for securing and transshipping the various articles of commerce; and at Wilkesbarre this provision extends to the river trade, as well as to that of the North Branch Canal. It is designed that, ultimately, boats shall cross between the two rivers, on the rail road, without shifting their cargoes; and the road, with a view to this, has been constructed with iron **T** rails, in the most perfect and durable manner.

The works of the company will now form the most direct, and cheapest route to either Philadelphia or New York from Wilkesbarre, and these cities are the best markets for perhaps nine-tenths of the produce which descends the north branch of the Susquehanna and which has hitherto been carried to Baltimore.

The distances from the North Branch at Wilkesbarre, to the several Atlantic markets by the various routes, will be seen by the following table:

	To Balt.	Phila.	N. York.
The distance from Wilkesbarre, by the Susquehanna to tide at Havre-degrace, is 196 miles,	256	275	385
From Wilkesbarre, by the Union Canal, to the east side of Philadelphia,		282	391
From Wilkesbarre, by the Lehigh and Morris Canal,			193
From Wilkesbarre, by the Lehigh and Delaware, to tide at Bristol, is 152 miles,	279	170 & by Black's Eddy	218

The following shows the comparative cost of getting lumber from Wilkesbarre, to Philadelphia, by the Lehigh works, and by the Susquehanna and Chesapeake and Delaware Canal, which is the route it *now* takes.

From Wilkesbarre to Havredegace, freight by the channels of the river, - - - - -	\$1.75		
Risk or insurance, 10 per cent., - - - - -	1.00		
Freight from Havredegace to Philadelphia, - - - - -	2.00		
Loading and unloading, - - - - -	30		
	-----	\$5.05	per 1000 feet.
From Wilkesbarre to Havredegace, by canal, 196 miles, at $1\frac{3}{4}$ cts. for toll and freight, - - - - -	3.43		
Loading and unloading, - - - - -	30		
Present freight from Havredegace to Philadelphia, - - - - -	2.00		
	-----	\$5.73	do. do.
From Wilkesbarre to White Haven, by rail road, 20 miles, and loading and unloading, - - - - -	1.00		
Freight as <i>now</i> paid, including toll, to Philadelphia, by Lehigh and Pennsylvania Canals, - - - - -	3.00		
Unloading, - - - - -	15		
	-----	\$4.15	do. do.

It thus appears that the distances are very much in favour of the Lehigh route to both Philadelphia and New York, and that lumber can be taken to either of those markets, by the Lehigh route, at a cost less by about 20 per cent. than by the route which it now



ordinarily pursues; and lumber, it must be recollected, from its bulk and weight, is probably the most unfavourable article on which the comparison can be made. If *lumber* can take this route with advantage, every other article can do so with greater advantage.

The question, then, arises, whether the north branch of the Susquehanna will furnish a sufficient amount of tonnage to make the company's rail road improvements valuable? It will be seen, on reference to the map, that twenty counties in the state of New York, abounding in wheat and lumber, will be nearer *by twenty-five miles to Philadelphia, by this route, than they are to New York by the Erie Canal*; and that seven counties of Pennsylvania, north-west of Wilkesbarre, abounding, likewise, in grain and lumber, and one of them in bituminous coal, will be *twenty-six miles nearer to Philadelphia than to tide at Havredegrace, and 86 miles nearer to Philadelphia than to Baltimore*, which has hitherto been their principal market. The bituminous coal of Towanda, in Bradford County, Pa., will, by this route, be the nearest coal of that description to the markets of Philadelphia and New York. The agricultural products of the western counties of New York, among which are those alluded to above, have furnished sixteen-seventeenths of the tonnage of the Erie Canal, agreeably to a report of the New York Commissioners. The distances being in favour of the Lehigh route, and equal facilities as to water power being afforded along the whole line for manufacturing, there can be no good reason why the company may not calculate upon a fair share of the business. Some estimate, of the amount of lumber and



other produce which descends the north branch of the Susquehanna, may be formed from the account of the rafts and arks which passed Cattawissa in six days, in May, 1833, as published by Christian Brobst, Esq. viz :

2680 arks of produce of various kinds, and

3480 rafts of lumber, shingles, staves, &c., &c.

Allowing the arks to carry forty tons each, and the rafts twenty tons, or 20,000 feet of lumber each, will give a total of 186,800 tons. This was the amount of tonnage which descended in only one freshet, several of which annually occur.

By a recent statement, the quantity of lumber which passes down the Susquehanna is equal to 250 millions of feet annually, of which a large portion may be expected to be transported over the rail road and navigation of this company.

The completion of the North Branch Canal, and of the small remaining link between the state line and Elmira,\* will connect Philadelphia and the city of New York through the Lehigh, by an unbroken chain of improved communication with Lake Erie and the Great West. In addition to the immense trade now descending the Susquehanna valley, the company may then calculate upon deriving a vast accession of business by dividing the trade of the Erie Canal at Montezuma, from which point the distance to New York is 368 miles by the Erie Canal; 370 miles by the route of the Lehigh and Morris Canals; and 395 miles by the Black's Eddy outlet and Delaware and Raritan Canal; and to Philadelphia only, 347 miles, by the Lehigh and Delaware Canals. The Le-

\* See Appendix for extract from late Report of Canal Commissioners.

high route also possesses the advantage of being a southern route, and consequently navigable earlier and later in the season, in addition to giving the *choice* of the markets of New York and Philadelphia. The tonnage on the Erie Canal, in 1834, was 476,784 tons.

The Company's railroad also connects the Lehigh navigation with the Wyoming coal field, and has already given rise to the formation of coal companies, who calculate largely upon sending their coal, by its means, to the Atlantic cities. By this route Wilkesbarre is nearer than Carbondale to New York, and the navigation is better. Carbondale sent 121,660 tons of coal from their mines in 1839.

It should be recollected that almost every article transported on the rail road will also be conveyed along the seventy-two miles of the Lehigh navigation, so that the company will derive tolls on ninety-two miles of their improvements, in consequence of making only twenty miles of road.

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The vast forests of timber on the Upper Section of the Lehigh are already attracting the attention of lumber men. The price of these timber lands has risen from fifty cents to ten and fifteen dollars per acre, in consequence of the Lehigh improvements, and water powers are now much sought after in that section, for the erection of saw-mills.

The following statement of the timber lands that are opened to market by the completion of the Upper Section, is the result of diligent inquiries for some months past, by John Brown, the agent of the Company at White Haven:



"I forward the most accurate statement that is in my power to obtain, relative to the timber lands in the Valleys of the Lehigh, and its tributaries, giving the number of acres in each valley, and the probable average quantity of lumber per acre which will be manufactured, and sent down the Lehigh Navigation:

Where the Lands are situate.	No. of Acres.	Average No. of 1000 feet per Acre.	Total No. of 1000 feet board meas.
Mud Run, and Painter Creek valleys,	21,000	15 a 20	392,000
Hickory Run, and Hays' Creek, and up as far as south side of Tobyhanna, and up said stream to Pond Creek, - -	58,300	20	1,176,000
Upper Lehigh—North and west of Lehigh above Stoddartsville, and N. E. of Easton and Wilkesbarre turnpike, including part of Buck township, to its N. E. boundary, where it is terminated by a line of Covington township, - - - -	20,000	20	400,000
Original township of Covington, and at Head of Lehigh—partly over the line of Wayne county, - - - -	108,000	15 a 20	2,010,000
Lower part of Buck township, including the valley of Bear Creek, - -	15,000	10	150,000
Lands of Pine Forest Company, Wright's Creek and Pine Run, - - -	7,000	35	245,000
Lands on west side of Lehigh, from opposite Mud Run to White Haven, -	20,000	12	240,000
Eastward of Lehigh, and N. E. of Easton and Wilkesbarre turnpike, to extreme head waters of Lehigh, a distance of fifteen miles, in a direct line from Stoddartsville—the whole of this section is densely timbered, and very nearly all will go down Lehigh, say three-fourths, or	42,000	15	630,000
North side of Tobyhanna, - - -	13,000	15	195,000
Totals, - - - - -	304,300		5,438,000

Say, total quantity of lumber on said lands five millions four hundred and thirty-eight thousands *of thousand feet, board measure.*



"In making this estimate, I have, in some cases, taken it twenty per cent. less than what some of the owners of timber lands think their lands will average per acre, but my estimate, I presume, will very nearly reach the truth."

"The number of Saw-Mills erected and erecting, on the Upper Section of the Lehigh, and its tributaries, is as follows :

	No. of Mills.	No. of Saws.
On the Lehigh, above Stoddartsville,	4	7
On the Lehigh, at White Haven,	4	5
On the Lehigh, at Dam No. 19,	2	4
Stephens' Meadow Run, above Stoddartsville,	1	2
Pond Creek,	1	1
Bear Creek,	3	4
Tobyhanna Creek,	1	2
Pine Run,	2	2
Wright's Creek,	2	2
Hays' Run,	3	3
Hickory Run,	6	7
Cressy's Creek,	1	1
Two miles west of White Haven, (by steam,)	1	2
Dreck's Creek,	2	2
Mud Run,	2	2
Terrapin Pond Creek,	2	2
On Lehigh, at Stoddartsville,	1	1
Totals,	38	49

Forty-nine saws, averaging 600,000 feet each, which is a low estimate, would amount to about 30,000,000 per year. The toll is, on an average, \$1 per 1000 of course the number of saws and quantity of lumbe manufactured, will increase yearly, for some years to come."

The following editorial paragraph, copied from the Wilkesbarre "Farmer & Journal," of a recent date

is connected with this subject, and will be found interesting:

“*The Swamp*.—The immense tract of high and mountainous country between this valley and the Blue Ridge, which has heretofore presented a uniform character of solitary desolation, with but here and there, sparsely scattered along the great public road leading through it, the lonely cabin of a settler, has now become a perfect hive, bustling with life and activity. In this region abound large tracts of the finest timber lands, through which flow, fed by the immense and broken mountains, large streams that furnish every facility for the erection of mills and the sawing of lumber. The improvement of the Lehigh river into the heart of this region and the outlet furnished thereby, added to the stimulus presented in the high price of lumber, has produced this influx of human life and activity into this heretofore desolate country. Large quantities of lumber are even already produced, and arrangements are making by the erection of numerous mills, to increase the quantity to an immense extent. Thus does the restlessness of human enterprise search in every quarter for opportunities to expend its resources and apply its industry, making regions which would for ever apparently be left exclusively to the dominions of the denizens of the forest, contribute to its profit and luxury.”

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By making the canals on the Lehigh of a large size, so as to admit the passage of boats of the ton-



nage which could be most profitably and cheaply used in the transportation upon it, the very important collateral advantage was secured, of making provision for the use of the great fall and very abundant water of the river, as a power for driving machinery. The cross section of the Lehigh canals presents an area comparing with the area of the Great Erie Canal, as  $262\frac{1}{2}$  to 136. By this arrangement, it is believed the Company now possess a water power distributed along their line of navigation, and still unappropriated, equal to the power of six thousand horses, after deducting the water necessary to accommodate the navigation, to the extent of two millions of tons annually. The strips of land between the canals and the river, suitable for the sites for manufactures, have in most instances been obtained by the Company, in the settlements for damages.

This water power is situated on a navigation, communicating with the tide waters of New York and Philadelphia, at one end, and at the other with the North Branch of the Susquehanna, which drains northern Pennsylvania, and western New York, a district of country, perhaps, not excelled in fertility, and now containing a population of 800,000 souls. That portion of the water power which is to be used, by the water passing from one canal level to another, will be free from all impediments by back water, as the levels must always be maintained at an adjusted height, to accommodate the navigation, which paramount interest, by the necessity of keeping the works in repair, will secure probably less interruption to manufactures than would occur in ordinary locations. These cir-



circumstances render the situations on the Lehigh peculiarly valuable for smelting furnaces, in which the detention of a few days might be destructive of the season's business.

The immense quantity of grain from the Susquehanna, will here find the principal power for manufacturing it, on its road to Philadelphia or New York. It was a circumstance similar to this, that gave rise to Rochester on the Erie canal, with its great flouring establishments, and like causes may be expected to give rise to similar establishments on the Lehigh.

The abundance of iron ore, coal, and limestone, in the immediate vicinity of sufficient water power for the most extensive works, and on a large navigation connected with the best markets, form a combination of advantages peculiar to the Lehigh, and must make an extensive demand for the *power* to manufacture iron in all its branches, from the ore to the various forms in which it is adapted to the uses of the community, and to an extent limited only by the demand for the articles.

The great water power of the Lehigh may, therefore, be fairly expected, and at no distant day, to be fully occupied by business derived from all the above sources, and at the present selling prices, the water power alone may be estimated to produce an income of \$120,000 per annum.

It has been supposed by some persons, that the power of steam, where coal is cheap, is preferable to water power, for the purpose of manufactures. The Managers have for some time been examining this

question, and present the following comparative view of the cost of using the two kinds of power, as the result of their inquiries:

At South Easton, the Company charge an annual rent for water power, of \$3 per inch, which for a sixty horse power, or 400 inches, under a 3 feet head and 20 feet fall, is	-	-	-	-	-	\$1200 00
Interest on cost of water-wheel, (\$1000,) and allowance for wear,	-	-	-	-	-	200 00
						<hr/>
\$1400 ÷ 60 horses = \$23 $\frac{33}{100}$ per horse power						\$1400 00
per annum.						<hr/>

A sixty horse engine cost \$7000, on which interest per annum,	-	-	-	-	-	\$420 00
Repairs, and perpetuating engine, 15 pr ct.,						1050 00
Engineers and firemen, working night and day,	-	-	-	-	-	1200 00
Eight lbs. of coal (the <i>lowest</i> estimate,) per horse power, per hour, is 5 tons per 24 hours, and 1825 tons per annum, at \$2 per ton, being the lowest price for coal at the coal landings,	-	-	-	-	-	3650 00
						<hr/>
\$6320 ÷ 60 horses = \$105 $\frac{33}{100}$ per horse power						\$6320 00
per annum.						<hr/>

Showing an annual saving, by using water power instead of steam, of \$82 on each horse power engine.



employed, or \$4,920 a-year on a sixty horse power, which is sufficient to drive two furnaces.

It is stated on the authority of Frederick Graff, Esq. the experienced and intelligent Superintendent of the Fairmount Water-works, that the expense of supplying the city of Philadelphia, by steam engines of the most approved modern construction, with the same quantity of water raised by the present works, would be about one hundred and thirty-seven dollars per day; while the cost by water power is only seven dollars per day. Three men attend the works by turns, each being on duty eight hours; and the above is found sufficient for wages, fuel, light, tallow, &c.

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The Company's Coal lands, amounting to six thousand acres, comprise the whole of the east end of the first or southern Anthracite coal field, beginning on the top of the mountain, about half a mile from the Lehigh river, and near Mauch Chunk, and extending without interruption to Tamaqua, on the Little Schuylkill, a distance of 13 to 14 miles. On these lands are found, beginning on the north side of the Coal Basin, nine veins from five to twenty-eight feet in thickness, making together 111 feet. On the south side, which has not yet been so fully examined, are found veins of 10, 20, 15, and 9 feet. This coal is now opened into, from the Room Run Valley, which cuts into the mountain on the northern side of the Coal Basin, and



near to its base, and thus exposes the veins above mentioned. At the Old Mine, five miles west of Room Run, the vein of 50 or 60 feet, which is the only vein worked at this place, lies as a saddle on the top of a hill nearly as high as the main mountain; here the coal is removed by quarrying in open day. About thirty acres have been worked out from this single vein, which have produced upwards of 1100,000 tons.

From the various openings above mentioned, and other examinations that have been made, it is believed that it is entirely within bounds to estimate these lands to contain at least 30,000 tons of coal to the acre. The quality of the coal is not surpassed by the coal of any other mines.

Among the peculiar advantages possessed by the Company's coal lands, may be mentioned—

1st. The position of the Old or Great Mine, being near the top of the ground, so as to admit of its being *quarried* out—by this means, the Company can employ “*common hands*” instead of *miners*, to produce increased quantities of coal, and as this mine is open to day, it is better adapted to the operations of a large Company, than mines under ground.

2. The mountains on each side, and forming the edges of the Coal Basin, are about 500 feet above the valley near to, and parallel with it. These mountains extending about 13 miles in length, admit of drifts being run towards the bottom of all the veins in the Coal Basin, by which means the veins can be drained and worked by descending roads from the coal to the river. There is room for more than ten drifts, without interfering with each other. These drifts can be

made at a moderate expense when needed, and produce more than 100,000 tons of coal each, per annum.

3. The mines of this Company are in the *nearest* coal range to tide-water, and can, with timely notice, supply any deficiency, in case the mines higher up the Lehigh shall not at any time be prepared to send down a sufficient quantity.

The Company own the landings for an extent of two miles, along the Lehigh, near Mauch Chunk, and can therefore accommodate the coal trade to any required extent.

The railroads and branches constructed by the Company, from their landings to the Old Mines, and the Room Run Mines, including the branches *in* the mines, equal in the whole, 25 miles in length.

The present stock owned by the Company, of mules, cars, &c., is ample for a business of two hundred thousand tons of coal per annum, which quantity was actually brought from their mines in 1837. This comparatively small quantity annually taken from the company's mines, and on the terms on which a portion of them have been rented out, will, together with the tolls on the same, yield sufficient profit to pay an interest on the whole of the capital and loans, exclusive of all other sources of income.

The Managers believe that coal cannot be sent to market by any other route cheaper than by the Lehigh, since one cent and two-thirds per ton per mile, at the highest rates paid for boating during the last two years, will more than cover the whole expense of toll and freight to tide, giving all connected with the transportation a fair profit. In 1837, the freight paid



to boating contractors was only sixty-five hundredths of a cent per ton per mile, at which price they made money. The managers fully anticipate the reduction of freight to tide, to half a cent per ton per mile, which it can now be done for on the *Lehigh* Navigation, so soon as the Delaware division of the Pennsylvania canal is made to correspond in capacity with the *Lehigh*. This alteration will speedily be required, to admit the passage of the additional freight which the Upper Section of the *Lehigh*, and the *Susquehanna Railroad* will turn into that channel.\*

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The Managers have for many years been extremely anxious to have the business of smelting iron with anthracite coal introduced upon the *Lehigh*, on account of the immense demand for water power and coal, which that peculiar business would create, and the amount of tonnage which the transportation of ore, coal, limestone, and iron, required for it, must necessarily produce for the payment of tolls. They have passed a number of resolutions at various times, commencing with December, 1834, and ending with July, 1839, the particular terms of which will be found on your table, offering, as inducements to individuals, or companies who would undertake the work, grants of water power, coal at reduced rates, and the passage of it on the Navigation, toll-free, to a large extent, provided they should succeed in introducing the busi-

\* See Extract from Canal Commissioners' Report, in Appendix, for their views on this subject.



ness on the Lehigh. It at length became the decided conviction of the Managers, that a long time would elapse before the experiment would be made on a suitable scale on the Lehigh, unless some who were largely interested in the Company would come forward, and join in the undertaking. Under these circumstances, three of the Managers induced other individuals to join them in forming the association, which afterwards became incorporated under the law for promoting the manufacture of iron with coke, or mineral coal, by the title of the Lehigh Crane Iron Company, with a capital of \$100,000, and accepted the terms of the resolution of July, 1839. This resolution grants the water power of any dam between Allentown and Parryville, with the land suitable for using the water power, (reserving to the Lehigh Company 200 inches of water at each lock, in addition to what may be required for the navigation,) to any persons who would raise a capital of \$50,000 for the purpose of making the experiment of smelting iron from the ore, with anthracite coal, and who should actually expend \$30,000 in improving the site for iron works, and making the experiment, unless they should succeed at a less expense in making iron. The fee of the water power to be vested in them, either upon their succeeding in keeping a furnace regularly at work, for three months in making iron, at the rate of twenty-seven tons a week; or in case of a failure, when they shall show to the satisfaction of the Lehigh Coal and Navigation Company, that the sum of \$30,000 has been expended as above mentioned, in making the attempt. Should they succeed in making iron with anthracite coal, then

not more than one-fourth of the water power thus granted, shall be used for any other purpose than in the manufacturing of iron from the ore, or in the manufacture of articles from iron thus made. The work to be commenced by the 1st of September, 1839, and at least \$15,000 to be expended in two years. The stockholders in the Lehigh Crane Iron Company now are—Messrs. Josiah White, Erskine Hazard, Thomas Earp, Timothy Abbott, John M<sup>c</sup>Allister, Nathan Trotter, Robert Earp, George Earp, Theodore Mitchell, and Owen Rice. Arrangements were made by this Company with Mr. George Crane, of Wales, for the importation of all the machinery and materials for a complete Welsh furnace, and they have engaged a person highly recommended by him as fully capable of erecting and superintending it when in operation. Their works are progressing rapidly to completion, and in that effective and permanent manner, that is highly satisfactory. A large amount has already been expended, and it is calculated by the Crane Company, that upwards of fifty thousand dollars will have been expended *before* they get into operation with one furnace, in the month of May next, and that their whole capital will be required to complete the establishment; it being intended, that in all its parts it shall be of a character the most permanent and durable, and be a perfect model of a complete Welsh furnace, with the latest improvements, to be open to the inspection of all who choose to visit it. This furnace will be forty feet high, and twelve feet across the boshes. It is situated about three miles above Allentown, on the Canal connected with the



Hartman dam. The immense importance of the introduction of the manufacture of iron with anthracite, on the Lehigh, will readily appear from the following calculations: Two furnaces making 50 tons of pigs per week, each, will produce annually 5200 tons, and will require 10,000 tons of coal, 15,000 tons of ore, and 2000 tons of limestone. Supposing one half the quantity of pigs converted into bar iron, about 5000 tons more coal will be required.

There will thus be created by one comparatively small establishment of two furnaces, a tonnage of about 40,000 tons, at an average toll of 22 cents, will be

\$8,800 00

The water power required for the furnaces, and rolling or bar iron mill, would equal 90 horses, or say 600 inches of water, at the probable *average* price would be, per annum,

- 1,500 00

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Making a new revenue of - - \$10,300 00

for the mere tolls and water power, exclusive of all profits on coal. Thus it appears that employing the water power for the iron business, will produce an average toll more than five times the value of the water power thus employed.

A single establishment in Wales, and that not the largest, consumes 200,000 tons of coal annually. Should success attend the Lehigh Crane Iron Company's works, which there now seems to be no reason to doubt, we may confidently calculate that a few years will produce as many establishments on the Lehigh, as will, collectively, at least equal the single

one in Wales, which, agreeably to the above data, would produce a revenue from tolls and water power alone, equal to nine per cent. on the capital of the Company, and leave four-fifths of the water power still unappropriated. It is impossible to calculate the extent to which this business will ultimately be carried; but as the Lehigh is connected with a population as great as Wales, and is believed to possess equal if not superior advantages for the manufacture of iron, there seems no good reason why the demand for iron here, should not be as great as there, and furnish eventually a market for all the water powers, with a correspondent amount of tolls for the navigation of the Lehigh.

In these calculations, no notice is taken of any profit the Lehigh Company may derive from any portion of the coal being sold from their own mines, and as their improvements connect with the three great coal ranges, the nearest of which is owned by them, it will be but fair to calculate upon *their* lands producing one-third of the coal to be used in the iron business. Nor do the calculations embrace the profit to be derived from iron ore, from the Lehigh Company's lands, several veins of which, heretofore unknown, have been discovered to exist among the coal veins, and which will make a material addition to the profits of the Lehigh Company.

Other advantages will also flow to the Lehigh Company from the introduction of the iron business, by the natural effects of capital and enterprise introduced by it along the line of improvements, attracting a great variety of other business, and creating tolls, none of which can ever be withdrawn from the Lehigh.



It is sometimes remarked, by those who do not consider the widely different nature of the operations of this Company and the Schuylkill Navigation Company, that the expenditures of the Lehigh are very large, as compared with those of the Schuylkill, which is confined to a *canal*, or *navigation alone*. The fact however, is, that our expenditures in the *navigation*, including all the new work of the Upper Section recently finished, are a trifle *less* than those of our enterprising neighbours of the Schuylkill. The investments of the Lehigh Company, *beyond* the cost of its *navigation*, consist of expenditures in the construction of the railroad connecting that navigation with the Susquehanna, and in large bodies of valuable lands, and in improvements thereon, and other property, works and appurtenances, partially described in the preceding pages, of a kind peculiar to itself, as compared with any company whose business is limited to that of a *canal* or *navigation only*. In addition to all which, we have a heavy mercantile capital invested in the Coal business. This portion of our capital, however, will not be required whenever the Company deem it their interest to discontinue that branch of their business, and let out their mines to be worked by others, as heretofore intimated.

The completion of the railroad, (the use of which we expect to have in September next,) will fulfil all the requisitions of the laws of the Commonwealth relative to this Company, and will close their great works and the further outlay of capital.

On the whole, the Managers can with confidence invite the Stockholders to visit the property of the

Company, from the mouth of the Lehigh to the Susquehanna, and the districts of country depending on our work to connect them with Philadelphia and New York city, and they believe none would return from such an excursion, without being perfectly satisfied that the investments have been judiciously made, and will amply reward the stockholders for all their expenditures.

By order of the Board of Managers,

JOSEPH WATSON,  
*President.*

*Office of the Lehigh Coal and Navigation Company,  
Philadelphia, January 13, 1840.*



At the Stated Annual Meeting of the Stockholders of the *Lehigh Coal and Navigation Company*, held January 13, 1840—

THOMAS P. COPE, *Chairman*:

The Managers submitted their Annual Report, with sundry other documents, detailing their transactions in the past year, and exhibiting the present condition and prospects of the Company, which were received and read: Whereupon, after some discussion, the following resolutions were adopted:

*Resolved*, That this meeting, satisfied of the great importance to the Company of the introduction upon the Lehigh, on a large scale, of the business of smelting iron ore with anthracite coal, approve of the acts of the Managers in passing the various resolutions relative to it, and the acceptance of the resolution of the 2d of July, 1839, by the Lehigh Crane Iron Company, and that the President of this Company be directed to have a deed executed to the Lehigh Crane Iron Company, for the water power of the canals, supplied by the Hartman Dam, with the land suitable for using it, agreeably to the terms of that resolution, whenever said Iron Company shall furnish satisfactory proof that they have complied with the terms of the said resolution of July 2, 1839.

*Resolved*, That the Board of Managers about to be elected, be requested to use their exertions to induce capitalists to commence the business of smelting iron ore with anthracite coal, as extensively as possible, and to erect mills and manufactories of various kinds

along the line of the canal—and that they be authorized to dispose of the water power for these purposes, on advantageous terms, for the interest of this Company.

The following resolution also, was then adopted:

*Resolved*, That the reports and other documents just read, be approved, and that the Managers be authorized to publish the same, or such parts thereof as they may deem expedient, in pamphlet form, for the use of the Stockholders, as usual.

THOMAS P. COPE, Chairman.

EDWIN WALTER, *Secretary*.



## APPENDIX.

“The *Beaver Meadow Rail Road and Coal Company*,” in the past year, shipped 38,595 tons of Coal by the Lehigh Canal. In relation to their “prospects for the ensuing year,” they state, “that they have the ability and the disposition to bring 100,000 tons of Coal, if the prices will justify it.”

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“The *Hazleton Coal Company*, have shipped from Penn Haven, during the past year, 34,000 tons, within a small fraction; and having purchased early in the season that part of the Laurel Hill Coal Company’s estate contiguous to the Hazleton Coal land, embracing the extensive mining improvements, machinery and fixtures of that Company, a portion of the above shipments has consisted of the Laurel Hill Coal. The Laurel Hill Mines, located on the south side of the Hazleton Basin, were found to furnish a description of Coal combining with the general characteristics of Hazleton Coal, the quality of free burning, which renders it highly valuable for steam-engines,

whether stationary or locomotive. In the report for last year, the employment of Anthracite Coal for propelling locomotive engines, was referred to, as having been fully established on the Hazleton Railroad, except for the first trip of the day, if that should be a descending trip. This exception no longer requires to be made, since the Laurel Hill Coal is found applicable, with perfect success, even on descending grades, after the first kindling of the fire, in which, alone, the use of wood is necessary. During the past year, also, the Hazleton Coal Company have greatly extended their structures, wharves, and buildings of all kinds, with the addition of a third locomotive engine, and a stationary engine at each mine, and could, during the approaching season, bring to market from 55,000 to 60,000 tons of coal. It is not, however, their purpose to expand their business immediately to the full extent of their present power, and it is probable their operations will not be extended for the current year, beyond 50,000 tons—the amount may properly be estimated at 45,000 to 50,000 tons.”

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“The *Buck Mountain Coal Company*, have, during the past year, put under contract to responsible individuals, and upon advantageous terms, their entire line of Railroad; and from a statement recently made by their engineer, E. A. Douglas, Esq., the grading will be entirely finished by the 1st of May, and as the iron, and necessary materials for laying the road are already procured, and on the spot, it is believed that



they will be prepared for prosecuting an active Coal business by the 1st of July next. The Directors think it no exaggeration to state, that they will be enabled to send to market from fifty to sixty, or even one hundred thousand tons of coal per annum, if the demand will justify it. It is deemed unnecessary to enlarge upon the many advantages possessed by the Company: first, in point of location, being the nearest to, and only four miles from navigation. Second, the peculiar facility of working and draining their mines, by means of a Tunnel, now constructing. Third, having an Iron road of easy grade, unconnected with, and independent of any other Company—these advantages being apparent to every person at all conversant with the Coal business.”

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“The *Sugar Loaf Coal Company*, have, during the past year, been actively engaged in opening their mines, and making the requisite preparations for doing an extensive and regular business. Within the year they have completed their Railroad, and placed on it two locomotives, erected a large stationary engine at their mines, (with the aid of which, they are at present mining upwards of one hundred tons per day, and can increase the quantity several fold,) built one hundred transportation cars, erected houses and other buildings for the accommodation of their miners and workmen, and have mined about twelve thousand tons of coal, of which 7510 tons were shipped on the canal from Penn Haven, in 1839. Their mines are now

well opened, and from the arrangements they have made, the Company anticipate sending to market in 1840, thirty thousand tons of coal."

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"The *Stafford Coal Company*, having sufficiently proved, by exploration, its extensive and valuable body of coal land, has erected its works on the great coal bluff of the Beaver Creek coal trough, and is now descending the main twenty-eight feet vein of that region by an inclined plane in the seven feet block, the best in that body of coal. The engineer of these mines has reported to the company, that he is now taking out as fine coal as the seven feet can any where produce, and under such favourable circumstances that all the water is sent out with the coal in the cars, there being, at present, no use for water cars or a pump. There can now be no doubt that all the veins of the region are included in the property of this corporation; about one hundred acres of which, including the works, are within the limits of the borough of Beaver Meadow, and between the mines of the Beaver Meadow Company and the town. The engineer also reports, that the present works will drain thirty acres of coal land; and that 50,000 tons per annum can be taken out by this plane for sixteen years, exclusively of a fine five feet vein since proved, under the twenty-eight feet, which may be conveniently worked by the same plane. He has also reported, that in another portion, at the foot of the mountain, there exists an inexhaustible mine, which



may be worked by a horizontal shaft, which would drain it, free of expense.

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“The *Northampton and Luzerne Coal Company*, have not been engaged in working their lands the past year, owing mainly to the embarrassment of the times. Further explorations have developed a much greater deposit of coal on their lands than they had ever anticipated, in addition to which, there is a large quantity of timber, and they have reason to believe iron ore abounds to some extent on their lands.”

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“The *Laurel Hill Coal Company*, having disposed of their real estate near to the town of Hazleton, with all the mining improvements, machinery, &c., connected therewith, at the commencement of the last working season, have sent no coal to market during the past year, 1839.”

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“The *Summit Coal Company*, are now uncovering and quarrying, a vein of coal lying nearly horizontally, within seven feet of the surface. It is upwards of twenty feet in thickness, and is found to produce more than twenty-five thousand tons of coal to each acre of land. They have several other places where this and other mines can be worked above water level, which they propose to rent to individuals, to mine and trans-

port to market, or make iron upon the spot, as they have at least two veins of iron ore, one of which has been analyzed, and found to contain 49 per cent. of pig metal, and will yield about 33 per cent. in the furnace. They have taken every means to have the quality of the coal in their different veins tried, and the result has proved satisfactory, beyond their most sanguine expectations; all who have used it in Philadelphia, or elsewhere, give the most flattering accounts of it; they have hard white ash coal, suitable for large fires, furnaces, &c., and free burning coal which they consider equal if not superior to any other that has been brought to market. Professor W. R. Johnson, examined the land and analyzed the coal, and he pronounces it superior to any Anthracite coal that has been subjected to the test of analysis, either in Europe or America; he says in his report, that the ashes were of a brownish red colour, tolerably heavy, and had all the appearance of being derived from a regular "Red Ashed" Coal. He found of

Volatile gases,	-	-	-	6	$\frac{42}{100}$	per cent.
Pure Carbon,	-	-	-	92	$\frac{30}{100}$	"
Earthy residium,	-	-	-	1	$\frac{28}{100}$	"

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100

He also says, "I may be allowed further to remark, that of all the Anthracites of which I have any knowledge, by my own experiments or those of others, the analysis just detailed, gave the least proportion of earthy matter."



“The *Wyoming Coal Company* report—‘We have the past year, added some valuable tracts of Coal land to our former stock, which may now be considered as giving us a supply of that important staple, equal to any demand. We have opened a tunnel into the 24 feet vein in Newport, and find it of a superior quality of coal. In Hanover we have driven a tunnel through the 10 feet vein, and are continuing it to the thick or main vein of the valley, which we have ascertained by proving the vein, is near at hand; from this tunnel our Railroad is graded to the Nanticoke Pool, being a distance of two miles. We have one other tunnel in progress, which is not half a mile from your White Haven and Wilkesbarre Railroad. We believe that our coal is at least of equal quality with any other, and can be mined at less cost, in consequence of the firmness of the roof not requiring propping, and the coal not being broken up by faults. Our opinion is daily gaining strength, that our best markets will be Philadelphia and New York, if we can get over to your Navigation at a reasonable toll on your Railroad, say 25 or 30 cents per ton, and that we can meet the Lehigh region on equal terms. Even when the North Branch canal shall be completed to the state line, we think your route to market will be equally good, for we shall be nearer to Philadelphia by 26 miles, than to tide at Havredegrace, and we are no further from New York by the Lehigh and Morris Canal, than we are from Havredegrace by the Susquehanna Tide-water canal. Our tunnels are constructed on a gradual descent from the mines, so as to keep them effectually drained of water.’”

*Engineer Department of the Lehigh Coal and  
Navigation Company, Jan. 1st, 1840.*

TO JOSIAH WHITE, Esq. }  
*Chairman of the Executive Committee of*  
*the L. C. and Nav. Company.* }

SIR:—From the statement herewith submitted, it will be seen, that there has not been as much work done on the Lehigh and Susquehanna Railroad, during the past season, as we had reason to expect at the date of my last annual report. This result has been mainly caused by the scarcity of hands, and the high price of all kinds of supplies. The suspension of other works, and the recent abundant harvest having mostly removed these difficulties, give us a reasonable assurance that the work will be completed by the time specified in the statement.

Early in the season, the contractors for Sections No. 6, 7, 9, and 29, finding that their prices would not warrant them in paying the high prices asked for labour and provisions, abandoned their work. In September, it became evident from the embarrassments which the contractors for Section No. 24 were labouring under, that they could not proceed with their work: notwithstanding their property had been sold by their creditors, they still persisted in holding on to the section. Under these circumstances, it became my duty to declare the contract abandoned, and give the committee an opportunity of putting the work into the hands of more efficient men. In consequence of the unfavourable circumstances alluded to above, these sections could not be relet on any thing like fair terms, until late in the season. They are now in the hands of energetic men, who are progressing with their work



as fast as it can be done to advantage. It may be well to remark, that Sections No. 6, 7, and 9, are mostly in deep rock cutting, which has to be taken out from the ends; consequently, but a comparatively small force can be employed.

As large a force as can be worked, is engaged in excavating the deep-cut at the south end of the Tunnel, and it is confidently believed, that it will be so far completed as to admit of the Tunnel being commenced as early as April next. The cutting at the north end has been mostly taken out; but contrary to our expectations there are no indications of rock, although the excavation has been carried to a depth of fifty-five feet; so that the tunnel will have to be driven in earth and arched, to what extent it cannot now be determined. The rock at the south end appears to be of sufficient solidity to sustain itself without being arched. This work should be commenced as early as the season will admit.

The Engine Pits at the heads of the Inclined Planes, are excavated, and a part of the masonry for the foundations laid. The contractors are hauling stone and collecting other materials, preparatory to commencing again in the spring, as early as the frost will admit of the construction of masonry.

Several mechanics are engaged in the construction of the Drums, and other machinery for the Inclined Planes.

The Steam Engines have been delivered at Wilkesbarre, and teams are hauling them to the heads of the planes—several teams are also distributing the iron rails along the line of the road.

The Cross Ties are all cut, and will be delivered in the course of the winter, so that I apprehend no

difficulty in getting a continuous track laid between White Haven and Solomon's Gap, (the head of inclined plane No. 1,) by the 1st of August next. A temporary track, however, will have to be constructed around Section No. 6, and over the Tunnel, which can be done without incurring much expense.

On the 1st of November two and a half miles of the superstructure was put under contract, with the understanding that it should be completed before the setting in of winter; but the difficulty of procuring suitable hands for so short a time, prevented the contractor from finishing but about one mile.

All the other works on the line of the road, are in a good state of forwardness.

The *descending* Navigation, from Stoddartsville to Wright's Creek, received some injury from the breaking up of the river in the spring. Some of the wing dams were levelled down, and the stone rolled into the channel. As soon as the state of the water would admit, a company of men was organized, who soon put the works in repair. Apprehensions were entertained by many, that the great distance between the lower Dam and *Slack Water* Navigation, and the unavoidable spreading of the water in the artificial freshets, would be such, that there would not be a sufficient depth of water in a dry season to float the rafts below Pine Forest. In order to satisfy those concerned in the lumber business, and put the question at rest, your Committee directed a Dam and descending Lock to be constructed at Pine Forest, which has been completed. The interruptions caused by the construction of this dam, and repairs of the channel, prevented much business being done during the past season. As the works are now in good order,



and a large amount of capital has been invested in timber lands in that section of the country, it is presumed that a large amount of lumber will pass down this channel during the next season.

The Upper Section of the Lehigh Canal or Slack Water Navigation, has continued in good navigable order, without any interruptions whatever. Two seasons have now passed since this work was opened for public use, and not a single breach has occurred throughout its whole extent, a distance of twenty-six miles, which is unprecedented in the history of canals in this country.

Cribs of timber, filled with stone, have been constructed at the ends of several of the dams, to prevent the abutments from being undermined by the water, and also at the lower end of the locks, to guide the boats into the locks, and to protect the wing walls from being injured by the boats. The locks, dams, and other works, have stood remarkably well, and are now in complete repair.

In my last annual report, I recommended that the mode of filling the locks on the Upper Section, should be adopted on the Lower Section, in the event of any of the gates requiring to be replaced; since that time one of the locks has been altered to that plan, together with some improvements in the opening and closing of the upper lock gates, which fully sustains the opinion then expressed, "that more than one half of the time consumed in passing those locks could be saved, by the adoption of that plan."

All of which, is respectfully submitted,

E. A. DOUGLAS, Engineer.

The following are extracts from the report of the Canal Commissioners of Pennsylvania, Messrs. James Clarke, Edward B. Hubley, and William F. Packer, for the year ending October 31, 1839, communicated to the legislature since the meeting of the stockholders of the Lehigh Company, in January, 1840. The extracts are taken from those portions of the report under the head of "*Delaware Division*," and "*North Branch Extension*."

#### DELAWARE DIVISION.

"From the immense amount of tonnage which will be thrown upon this canal, by the extension of the Lehigh navigation twenty-six miles above Mauch Chunk, through the heart of the coal regions, and the railway now nearly completed from the Lehigh to the Susquehanna, the Board would recommend that the capacity of the canal should be increased by widening the locks. They are at present 90 feet in length and but 11 feet in width, which will only admit the passage of boats of about sixty tons burthen, while the water line of the canal is forty feet, and its depth five feet, sufficient to pass boats of one hundred tons burthen, if the locks were 90 feet long and 17 feet wide, the size of those upon the Susquehanna. It may, however, hereafter become necessary to enlarge the capacity of the entire canal, to enable it to accommodate the increased business, which will unquestionably be thrown upon it by the numerous companies concerned in the vast coal and pine regions of the Lehigh, and the tonnage which may be safely calculated upon from the Lehigh and Susquehanna, and the Catawissa railroads."



## NORTH BRANCH EXTENSION.

“The design of the Legislature in authorizing the extension of the North Branch Division to the State line, was to effect a connection between the improvements of New York and Pennsylvania. This connection is of immense importance to the interests of both States—it will not only add materially to the business done on the public improvements of both, but to the permanent wealth of large sections of the territory of each.”

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“During the past summer the board visited and examined the country around the northern termination of this line of improvements, as well as the contemplated connections with it in New York. That State has already extended her improvements so as to intersect the Susquehanna by canals, at two points, viz: By the Shenango Canal, from Utica on the Erie Canal, to Binghamton on the Susquehanna, thirty-nine miles from the State line, near Athens, and also from Montezuma, on the Erie Canal, by Seneca Lake and the Chemung Canal, to Elmira on the Chemung branch of the Susquehanna, sixteen miles above the State line near Athens. A connection has also been formed from Montezuma, by the Cayuga Lake and the Ithaca and Owego Railroad, to Owego on the Susquehanna, eighteen miles from the State line. By surveys made under the direction of the Canal Commissioners of New York, it has been ascertained that a connection by either of these routes is entirely practicable; and from the deep interest

which that State has in accomplishing that object, this board can entertain no doubt that it will before long be undertaken and completed. It is submitted to the Legislature whether sound policy requires the adoption of any measures on the part of Pennsylvania to secure concert of action between that State and this."